

Pericardium contained about two ounces, and the cavity of right pleura contained a pint of clear serum. Old adhesions existed between the pulmonary and costal pleura on both sides, and between the pericardium and heart.

Abdomen.—Stomach and intestines healthy. Liver very much enlarged and friable; kidneys somewhat friable.

Remarks.—The above case is from notes by Passed Assistant Surgeon Joseph Beale, U. S. Navy.

ART. VII.—*Medical Notes on a Cruise in the U. S. Ship John Adams.*
By JOHN A. LOCKWOOD, M. D., Surgeon U. S. Navy.

It is but reasonable to suppose that the medical history of a tropical cruise, such as those taken by the vessels of the United States Navy, would contribute more or less to the stock of professional knowledge, if the diseases incident to the various ports visited were observed with attention, and narrated in a spirit of candour and truth. I trust therefore that even these imperfect notes, destitute as they may be of any merit of execution will repay perusal from the interest inherent in the subject.

The complement of men attached to the United States ship John Adams (being a sloop of war of the first class) was about two hundred. Their ages ranged from sixteen to fifty-five, averaging as near as I am able to judge about thirty. Their places of nativity and former residence were of course various and irregular. Unluckily for the class, we can speak with more accuracy of their modes of living, as but few men-of-war sailors are to be found unaddicted to drinking of spirituous liquors. This of course does not apply to the officers and apprentices, who aggregately composed about one-fifth of the whole number. When shipped at the rendezvous, they are examined by an attending surgeon, who is directed to reject all of unsound health. The presumption, therefore, is, that none but the seaworthy are detailed for a ship. This, however, does not always hold good. The rules for passing or rejecting a recruit which each surgeon lays out for himself may be different, and give origin to some latitude of opinion and practice.

The ship was commissioned on the 5th December, 1837, at New York, from whence she sailed a few days afterwards for Norfolk, and there remained until the following May, awaiting the preparations of her consort, the frigate Columbia. The exposure of our crew to the inclemencies of an American winter, without fire, afforded a pretty fair test of their stamina. In the spring, about twenty who had not come up to the assumed standard of hardihood were exchanged at the receiving ship for others. I will not

venture to assert how much the exposure, and consequent sufferings of the rest, prepared them to experience additional harm from future liabilities. Previous to sailing, a medical survey was requested on those individuals whose health was supposed to incapacitate them from a cruise in the East Indies. The experience of the following year satisfied me that all old men, whatever may be their apparent health or hardihood, should be included in such a category. In the case of sailors, all over fifty might justly be denominated aged, for among a class of men so much exposed, so irregular, and so thoughtless under all circumstances, but few attain that senectitude. In support of this opinion, I will adduce the cases of all those whose ages exceeded fifty, and trace their history through the trying climate to which they were sent, although in so doing, I shall anticipate somewhat the regular narrative: these were four in number.

1st. John Ball, boatswain, ætat. 53, corpulent person, and intemperate on shore, where he was subject to gastric irritations. The first few months of the cruise he was restrained from drink, and enjoyed tolerable health. At Singapore, in February 1839, he took his first and last frolic in the East Indies. Shortly after it he was seized with a violent cholera morbus, in a few days settling into a fixed pain over the epigastric, and right hypochondriac regions, accompanied by constant gastric irritability. After fourteen days' illness, his sufferings terminated in death during a severe rigor. On examination, a few hours after death, in addition to various lesions of stomach and bowels, lungs and heart, the *liver* was found in the following state: "Enlarged and indurated in left half, right lobe friable, and excavated in posterior portion, containing at least a quart of illaudable pus. This cavity communicated with the cavity of abdomen under the suspensory ligament, in which matter also existed." This case is interesting as displaying the extensive progress an hepatic abscess is capable of making in the short period of a fortnight under circumstances favourable to its development. Induration, as found in the left lobe, probably existed previously to the attack, throughout the viscus, but it is pretty certain from the observed symptoms during life, that the formation of the abscess occurred but a few days before death. The first note of a pain in hypochondrium was made eleven days prior to this event.

2d. C. Trusty, ætat. 53. When the ship had been in the East Indies about six months, and others were beginning to suffer from dysentery, this man was attacked with hemiplegic epilepsy affecting right eye, right side of tongue, and right arm. These attacks increased in frequency and severity until death ensued five months after their incursion.

3d. Silas Cooper, ætat. 55. This individual remained on duty ten months after doubling the Cape of Good Hope, when he was admitted on the list for debility. For three months he sank without apparent cause, and then died, to all appearances purely from the debilitating influence of climate acting on old age.

4th. John Hamilton, ætat. 54, went through the East Indies unscathed by disease, but on a protracted passage from China, on the appearance of scurvy among the invalids, he was attacked more severely than any other, and would have fallen a victim to it but for our timely arrival in port.

5th. John Smith, ætat. 56. Was not afflicted with any serious malady, but still his case is apposite to our subject. From ordinary exposure (late

in the cruise) he was subject to intermittent fever, sometimes sufficiently active to excite apprehensions for the consequences. On one occasion a toe took on that peculiar condition designated gangrena senilis, and part of it sloughed off. He had slight scorbutic symptoms during the progress of the disease on board.

But there are many other causes of disqualification besides old age that should be regarded in selecting a crew for the East India station. It is hazardous likewise for the young, as constitutional predispositions, which might be overcome on attaining manhood, are likely to be developed there. Our own experience verified this. Of twelve apprentices assigned the ship in the United States four died before leaving the East Indies, of whom one fell victim to psoas abscess. Tubercles were developed in two young individuals, and ran an exceedingly rapid course.

All those of infirm health, and all who have suffered from organic diseases should be unhesitatingly rejected. But a class more objectionable than all others are those who have been previously much exposed to that, or a similar climate, especially if they have been the subjects of dysenteric complaints. It certainly is not with the dysenteries of the East, as some say it is with the yellow fevers of the West Indies, that the stranger becomes acclimated by time, although the British army reports controvert even this position, hitherto so confidently assumed. It is well known, as the distinguished editor of the *Medico-Chirurgical Review* remarks, that the intestines become more irritable by every subsequent attack, and even without an attack, by those partial derangements which annually increase among those exposed to the causes of dysentery. The consideration of this physiological fact should have its weight with those who have the disposition of our naval forces, and direct speedy relief to ships, that their cruises in the tropics, and especially in the East, be as little protracted as possible, for after all it is not the unhealthiness of particular ports, so much as the general delay on the station that causes so great a mortality among our public vessels.

It is at least curious, although it may have been a coincidence, that with us the *blacks*, who constituted about one-twelfth of the whole, were in a great degree exempt from the peculiar diseases of the climate. The same remark applies to those of Asiatic extraction, whereas among those of European descent, during the six or seven months dysentery prevailed on board, one in four were attacked by it.

During the period of our stay at Norfolk, (four and half months,) we lost two by death. One with catarrh, who was suddenly carried off by congestion of the brain, a form of disease then endemic in the neighbourhood, and frequently fatal. The other was an officer's servant, upon whom the variolous eruption appeared a few days after leaving his friends in New York. The contagion was communicated to some others, who recovered. At this time all those who had not distinct marks of vaccination

were subjected to the operation, and the disease did not obtain a foothold among us afterwards, although we visited some ports where it raged most violently, and where the *Columbia* suffered to a considerable degree. The average number on the "sick list," whilst in the waters of the United States was twelve.

May 6th, 1838. Sailed from the United States.

May 26th. Arrived in Funchal, Madeira.

The salubrity of this island is universally known and acknowledged, the pleasantness and equanimity of its climate having long recommended it to the valetudinarian. It would be superfluous to add my testimony to the mass already on record by dwelling at length on its peculiar advantages of location, as the valuable writings of Sir James Clarke, and others, have familiarized those with the professional reader. Average sick in Funchal, 10.

June 3d. Sailed from Madeira.

July 10th. Arrived in Rio de Janeiro.

This city is in south latitude 23° , and west longitude 43° . Screened by its position among mountains from most winds, excepting those blowing immediately into the mouth of the harbour, its heat is excessive during nearly all seasons of the year. The effects of its high temperature are manifested in the cachectic appearance of the inhabitants after a few years residence, and their obnoxiousness to diseases consequent on a relaxed fibre. It is estimated that one half of the population are affected with some variety of hernia. The magnitude which oscheoceles sometimes attain, well nigh exceeds credibility. It is reported of one individual, now dead, that the scrotum had descended so low from the weight of the contained parts, as to render it necessary for the subject to wheel it in a handbarrow in advance. However this may be, the most casual observer cannot fail to remark the number of these enlargements among the labouring classes, whose dress serves to display the deformity; some of these may result from dropsical effusions, which are likewise exceedingly common. Agreeably to my experience of a year on the Brazil station, the most frequent termination of all diseases of any standing is in dropsy of the pericardium and chest. This is especially the case with those of depraved habits or impaired constitutions. Among children effusions of the brain are exceedingly common, so much so as to communicate very generally to those children born in Rio, the peculiar conformation of skull observed in hydrocephalic patients. It was very evident in the young emperor when I first saw him in 1834.

Writers on the medical topography of Rio, enumerate fevers and dysenteries as rife disorders. To the shipping this certainly does not apply. Indeed it has been rare in vessels in which I have served to witness acute diseases of any kind. Our crews are usually healthy, when care has been taken to secure sound men. Those subject to the sequelæ of chronic

affections, the offspring of previous tropical cruises, are the first to succumb to the influence of its enervating climate. Cutaneous diseases are very common among the blacks; especially that most disgusting affection, Elephantiasis. The city hospitals are seldom without cases of Small-pox, generally introduced by slavers from the coast of Africa, and often prevailing to a frightful extent. Average sick in Rio, 9.

July 26th. Sailed from Rio de Janeiro.

Sept. 14th. Arrived in Zanzibar.

Zanzibar, the first port visited east of the Cape of Good Hope, is situated on the island of the same name, in latitude 6° north, and longitude $39^{\circ} 20'$ east. The island is of coralline foundation, and but slightly elevated above the level of the sea. Its fertile soil yields luxuriantly, rice, sugar cane, spice, and various palm trees. The coast of Africa, for many miles in view, is separated from Zanzibar by a channel twenty or thirty miles broad, interspersed with verdant islets, and coral reefs. The town contains a population of nearly thirty thousand, consisting of Arabs, Africans, and the native inhabitants, or Sowailies. The construction of the city is in the Arab style, with its usual accompaniments, filth and misery. The better kind of buildings are those erected by the former possessors of the country, the Portuguese, in the better days of their early navigators. The others are oblong huts, composed of stakes, and reeds, or palm leaves, with the interstices in some instances plastered with a tenacious mud.

We arrived off this place during the healthy season, near the close of the southwest monsoon, a steady southerly wind blowing through the channel in the direction which the land trends. Zanzibar has the character of unhealthiness, but our crew escaped with a few cases of fever and diarrhœa, attributable to a change from salt provisions to a fruit and vegetable diet, and their unavoidable exposure to the sun. All practicable precautions were enforced to avoid the causes of disease. As these were the same in all parts, it may not be impertinent to mention some of them here in detail. No unripe fruits were permitted to be purchased by the men, and no kinds the medical officers disapproved of. The watering of the ship, with other labour subjecting the crew to exposure, was performed as far as practicable by the natives of the country. To thorough ventilation every possible attention was paid. At night-fall the awnings were tented, and most of the crew slept on the spar-deck. The other prophylactic regulations enforced, are common to all well governed ships of our navy; such as regards attention to cleanness of the hold, the airing of bedding, the prevention of liquors being smuggled from on shore, &c. An intoxicating beverage is here made from the juice of the cocoa-nut tree, obtained by lopping off the upper leaves. When fermented it is quite palatable, but invariably produces diarrhœa in those who partake of it at all freely. None of the officers or men slept on shore in Zanzibar; this is

the principal source of danger on the *west coast* of Africa, few escaping a highly dangerous fever who do so.

From the testimony of the officers of H. B. M. ship *Andromache*, the climate of Zanzibar under similar circumstances is equally hazardous to Europeans. That ship, under the command of Commodore Nourse, visited the island in August, 1824. A number of officers, among whom was the commodore, slept for one night at the house of the governor, a short distance in the country. The greater number, including Commodore Nourse, were seized with fever, all of whom died. Captain Owen, the celebrated hydrographer, relates that one of his boat's crew, five in number, were unavoidably prevented from returning on board ship at night on one occasion. "Four out of the five who formed the party, instead of sleeping in the boat, landed, and lay around a large fire which they had kindled in the jungle. For nearly a fortnight no effects were visible, but at the end of that time, three fell ill and died, while the fourth was obliged to be sent home with an emaciated body and worn out constitution." Still the appearance of both the native and foreign population indicate a soil and climate infinitely more propitious to the health of all varieties of the human species than can be found on the Grain Coast, the seat of our colonization settlements, which I visited in the autumn of 1836. There man exhibits, as Dr. James Johnston correctly remarks, "the lowest varieties of formation." The four or five American and English residents we met with in Zanzibar, displayed a far more rubicund visage than we found ordinarily in British India. It is worthy of remark, that they entirely eschew the almost universal practice of the latter, of applying "hot and tempestuous liquors to the blood."

The water of the island not being so good as might be, is almost entirely superseded by the bland and delicious juice of the young cocoa-nut.—Here, as everywhere else, probably, in the East Indies, the water is usually filled with animalculi, which grow to rather an alarming size after being on board a few days. At first it required some fortitude to overcome a natural repugnance to swallow them, but I am not aware that any prejudicial effects ensued therefrom; some attribute to these little animals most of the calamities flesh is heir to in these parts, a notion I myself may have entertained at first to a slight extent, but soon discarded *in toto*.

Cassada and rice, with a few fish, constitute the chief articles of native diet. Besides these, the animal kingdom furnishes in the greatest abundance, bullocks of the humped species, (*bos indicus*), goats, and dunghill fowls; and among the fruits and vegetables, sweet potatoes, cocoa-nuts, melons, juck fruit, &c., &c. Average number of sick in Zanzibar, 18.

September 18th. Sailed from Zanzibar.

October 6th. Arrived in Muscat.

Muscat, the capital of the classical province of Oman, in Arabia Felix, is on the west point of the Persian Gulf, in north latitude 23° 37', and east

longitude 58° 30'. Completely encircled by a lofty rock of mica scist, except at the entrance of the harbour, the circulation of the air is prevented, and the sun's rays so powerfully reflected as to render the heat always most excessively oppressive. As its intolerable heat is the distinguishing characteristic of the place, I shall present without apology the following thermometrical table, copied from a work published some years since by an Italian physician in the Imaum's service, and for a long time a resident in Muscat.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Temperature of air at F.	80° to 84°	85° to 88°	87° to 89°	90° to 92°	93° to 96°	96° to 99°	96° to 98°	94° to 96°	92° to 95°	91° to 94°	90° to 93°	85° to 88°
Rain. Fogs.	never never	never —	* —	never —	never —	† —	never —	never —	‡ —	never —	never —	never —

In corroboration of the above, I am able to state that I have seen the thermometer at midnight as high as 96° F., and at no period of the day or night was it common to find it below 90° F., the average range for the ten days of our stay being 93°.

The town is exceedingly filthy, and ill-ventilated. Palm leaf mats are thrown across the streets from house to house, with a view of excluding the sun, and which answers the purpose of excluding the air quite as effectually. Its houses are crowded together as closely as possible, merely permitting a narrow alley to intervene, which is at all times redolent with the most noxious odours, derived from animal excrement, and decayed vegetable matter. The harbour is formed of a small cove as well placed as the city itself to receive the reflected rays of the sun, without an avenue for a current of air to circulate except in one direction from which the wind seldom blows. The city contains about 25,000 inhabitants principally Arabs, Hindostanees, and African slaves. Their principal diet consists of dates and fish, both of which are abundant, and very good. Ships are readily supplied with bullocks, sheep, and fowls, all of excellent quality in addition to a variety of vegetables and fruits, as dates, grapes, pomegranates, and figs. These are all brought from some distance, as in the immediate neighbourhood the soil is rocky and barren, without a verdant spot to relieve the sterile prospect, except within a few feet of some wells where a leguminous plant is cultivated for forage, by artificial irrigation. About these oases are small villages, consisting of the miserable huts of the poorest classes who are forbid to construct substantial dwellings without the walls, lest they be turned to the disadvantage of the city in the event of a siege.

* Sometimes two or three days in March, but not annually.

† Sometimes with lightning, but without a thunder-bolt ever falling.

‡ There are some years in which it rains two or three days in September.

In the population of such a city as Muscat, vigorous health it would be unreasonable to expect. We accordingly find among them an universal leuco-phlegmatic appearance, indicative of their feeble stamina, together with more marked manifestations of disease, as leprous affections, ophthalmias, visceral obstructions, and dropsical effusions. Much evil may be attributed to the baneful effects of their social and religious customs, authorizing a plurality of wives, the intermarriage of relatives, early marriages, and the seclusion of females. But to these there are partial offsets in the prevalence of strict temperance, both in eating and drinking, their frequent ablutions, their loose and flowing dresses, and that serenity of mind which never deserts the Arab. It is among the pitiable wretched who drag out their miserable existence outside the walls, where the chronic maladies I have specified mostly abound.

The medical profession is in the hands of a few ignorant Persians, who never trust themselves beyond certain indigenous plants. As these individuals do not enjoy the confidence of the Muscatians, the arrival of a foreign physician is hailed as a godsend, and he is forthwith beset by all the sick and complaining of the place. Among the "black-eyed houries" of the wealthy his aid is most frequently called for. These unfortunates being constantly immured within doors of an ill-ventilated city, seldom enjoy their health. I met among them one case of tubercular phthisis, but their complaints in most instances are referable to a deranged state of the generative system. During the summer months, fevers and dysenteries are rife: it is considered almost necessarily fatal to the European to reside there during this season. Three agents of the Hon. E. I. Company successively fell victims within a short period of each other. No European has resided there of late years.

The crew of the John Adams experienced no ill effects of climate during the week of our stay beyond a few ordinary cases of fever and cholera morbus. A slight exposure to the sun's rays was apt to induce cephalalgia from partial *coup-de-soleil*. A case of this kind on board our consort was so violent as to terminate fatally. Notwithstanding our immunity from sickness we were all happy to leave "Oman's green waters," satisfied that one week's residence was more agreeable than any longer period. Average sick in Muscat twelve.

October 12th, 1838.—Sailed from Muscat.

October 23d, 1838.—Arrived in Bombay.

The city of Bombay, the capital of the presidency of British India of that name, in north latitude 19° , east longitude 73° , is situated on a low, and level island, eighteen miles in circumference. It contains a population of three hundred thousand, but a small minority of whom are Europeans, or of European descent. The soil is a rich black loam, subject to annual inundations, and well calculated for the growth of rice, for which much of it is used. Formerly, probably the whole island was a thick

jungle, teeming with disease and death. From the earliest periods of its settlement, Bombay has been regarded as eminently deleterious to the European constitution. Although British wealth and British enterprise have removed many of the sources of its fatality, and rendered the island as congenial as art can effect, or nature permit, we find still the victims of avarice, necessity, and philanthropy alarmingly numerous.

Bombay is subject to extreme vicissitudes of weather, and presents the different seasons of the year in striking contrast with each other. From October to April, or in the north-east monsoon, the atmosphere is dry, and comparatively cool and pleasant, whilst in the south-west, or rainy monsoon, it is humid, oppressively hot, and in every respect uncomfortable. It is during the rainy season, from April to October, that fevers prevail.

Our sick list was smaller in Bombay than it had been previously, or was afterwards for so long a period. Still we were breathing an atmosphere replete with disease, as was sadly manifested on the eve of sailing. On the 11th of November, a few hours before we left our anchorage, Edwin Clary, a marine, was seized with Asiatic cholera in its most violent form, terminating fatally in ten hours from the first decided symptoms. Two days subsequently, another fell a victim to the same malady, and five days after that again a third died under similar circumstances. As these cases did not differ from each other materially in the symptoms, or mode of treatment, I will detail one as a sample of the others.

"*November 13th, 1838*, at sea, off the coast of Malabar. Edward Taylor, seaman, aged twenty-four, sanguine temperament; good habits. Has had diarrhœa for two or three days, which he neglected to report to the medical officers. At general quarters to day, he was stationed in the ward-room to pass powder. Hatches being battened down, it was exceedingly close and warm. Violently exercised for an hour or more under these circumstances, when the retreat was beaten, he was in an exhausted state, and very thirsty. He forthwith rushed into the cooler air on deck, and took a copious draught of water. A violent pain in the region of the stomach immediately followed. The pulse then not appearing to forbid depletion, he was bled to a small amount, when syncope ensued. At the same time a pill containing five grains of calomel and one of opium was administered. The epigastric suffering was in no measure relieved, and vomiting commenced shortly afterwards. At two P.M. (between two and three hours after the incursion) an attempt was made to apply cups to the epigastrium, when the patient was seized with the most violent spasms, alternating from one limb to another, and occasionally affecting the abdominal muscles. These continued for five or six hours. The countenance in the mean time became sunken and cadaverous, with a livid circle around the eye: coolness of surface except abdomen, rice water stools, and profuse vomitings. During this period, various stimulants were administered internally to bring about reaction, together with the free application of sina-

pisms, hot sand, dry frictions, &c., externally, but all without any elevation of the animal powers. At 10 P.M. he expired. On examination the stomach was found flabby, and rather larger than natural; slight erythema about the pyloric orifice. Peritoneal coat of intestines exhibited traces of inflammation throughout, much more so than the mucous coat. Gall bladder empty, and contracted. Spleen large and filled with grumous blood; liver natural; cavity of abdomen only opened."

The Medical Journal records the cases of a number treated about this time for the ordinary premonitory symptoms of cholera, who were readily relieved. It contains likewise the case of the recovery of an individual in whom decided symptoms of the disease were manifested. He was a robust man, and stood a copious bleeding. Taylor was the only one of those who died, on whom blood-letting was attempted. The treatment varied somewhat in the case of the last victim, an apprentice of about fourteen years of age. All cold drinks were withheld, and sipping of water as hot as could be imbibed prescribed: active frictions at the same time being persisted in. The disease did not appear again on board at any subsequent period of our cruise, although it prevailed in Manilla to an alarming extent at the time of our visit. No cases occurred on board the *Columbia*, probably because she, having arrived in Bombay eight days after the *John Adams*, was exposed for a shorter period to the exciting causes. During our stay in Bombay the city was entirely free of cholera, but it prevailed epidemically shortly after our departure. There, as indeed throughout India, sporadic cases are liable to occur among strangers at all seasons, besides appearing in the character of an epidemic at intervals more or less remote.

The crews of ships visiting Bombay frequently suffer from dysentery, which many attribute to the water they are supplied with. This indispensable beverage is collected during the rainy seasons in capacious tanks, erected in some cases by government, but mostly through the eleemosynary offices of individuals, such being inculcated in the religious books of Brahma as the most meritorious of charities. It is probable the water in some of these tanks is of a pernicious quality, but others contain as good as is generally met with in the neighbouring parts. Average number on the sick list at Bombay, five.

November 11th. Sailed from Bombay.

November 23d. Arrived at Columbo, Ceylon.

Columbo, the capital of Ceylon, is in latitude 7° north, and in longitude 80° east. It has been selected as the military station of the island on account of its healthiness, and is frequented by the European invalids from India in order to escape the effects of the baneful climate of the continent. It is built upon a promontory, subject to the full influence of the sea-breeze in either monsoon. The neighbouring country along the coast is level, and rather low, with a loose sandy soil. Thirty miles in the interior are

lofty mountains, where the inhabitants from the lower parts of the island can readily attain a cooler atmosphere. When held by the Dutch, Columbo was as fatal to European life as the other possessions of Mynheer in the East proverbially are. This arose from the extensive lowlands in the vicinity being cultivated and kept partially drained. The present owners have converted these meadows into beautiful lakes by throwing a dam across a stream which flows through them, and have thus removed the most prolific source of disease. Although this delightful settlement contrasts favourably with many other parts of India in salubrity, yet it is very far from enjoying an immunity from its peculiar diseases. Cholera has at various periods been exceedingly destructive to the population, both native and European, and still occasionally prevails. Dysentery, fever, and hepatitis are sometimes quite rife, and, in common with the rest of the island, small-pox has raged with a virulence and frequency unknown among the other British possessions. Average number on sick report at Columbo, 10.

November 31st. Sailed from Columbo.

December 20th. Arrived off west coast of Sumatra.

The west coast of Sumatra trends from east-north-east to west-south-west, and lies between the parallels of four and five north latitude. Along the sea side the country is flat and level, having a rich loamy soil covered with rank vegetation. A chain of mountains runs in the direction of the island's length, giving origin to numerous streams which pass into the plains below, and thence flow sluggishly into the ocean. On the banks of these streams the natives have made clearances for paddy fields, which are annually inundated by the overflow of the rivers' banks. So near the equator, and under the influence of the high lands of the interior, a large quantity of rain falls at all seasons. During our stay we had daily copious showers, although in the middle of the north-east, or fair monsoon.

The Malays of Sumatra are below the medium height of Europeans, but possess a frame apparently capable of more physical endurance than any of the numerous Asiatic tribes we had previously seen. The face is broad and angular, olive complexion, coarse and straight black hair.— Their teeth and lips are deeply stained with the juice of the betel nut; the teeth being dyed black, and lips red. We met with but few chronic diseases among them, and they probably escape with as small a share of bodily ills as any other people of the eastern world. This may in a great measure be attributed to their superior manner of living, and their active habits of life. Many of their dwellings are comfortable, and well adapted to a tropical climate. Curried rice constitutes the important item of their daily food, and is used with fish, flesh, or fowls, according to the taste or means of the individual. They may be addicted in some degree to the use of spirituous liquors obtained from pepper ships, but the substitute for this excitement among them is found in masticating the betel nut. This nut, inclosed in the leaf of a native plant, together with chunam,

(a preparation of lime,) and tobacco, provokes when chewed a highly stimulating effect upon the sensorium of an individual unaccustomed to its use. It is said to harden the gums, and prevent the tartar incrustation on the teeth.

On the coast of Sumatra, where we remained between three and four weeks, the crew began to experience the effect of the climate upon their health, although it was probably procrastinated for a time by the excitement attending the anticipated attack upon different towns along the coast. The sergeant of marines died upon the first of January, of dysentery, supervening upon chronic peritonitis. Average number on sick report on the coast, 12.

January 14th. Sailed from coast of Sumatra.

February 6th. Arrived off Singapore.

It was not until ten days after leaving the coast for Singapore that dysentery manifested itself in a decided manner. As I propose devoting to this disease hereafter a separate paper, I shall proceed in my narrative of the ship's progress. It is proper, however, in this connection, to refer in general terms to its history; the causes of its progress and extent with us.—To this period of our cruise, affections of the bowels were not more common than in most ships on other stations. Immediately on leaving our anchorage, off Soo Soo, the cases daily multiplied until, upon our arrival at Singapore, there were six or more of a serious character. During the remainder of our cruise in the East Indies, new cases were constantly occurring, and old cases relapsing, nor was it until the ship reached the Sandwich Islands, the following October, that no more new cases occurred. I am not aware that being in port or at sea affected the number of cases, or violence of the attacks; nor can I assign to any port visited from January to October, a pre-eminence over any other in being more or less obnoxious to dysentery. It is, however, worthy of remark, that the disease both in the John Adams and Columbia never seized upon an officer, except in an instance where it was clearly traced to imprudences on shore. This circumstance I regard as furnishing a solution to the question of the cause of its prevalence among us. I know not that the officers were more free from hardships than the rest of the crew, or enjoyed superior comforts, except in having a better diet. The crew were subsisted upon the rations furnished by government; the officers' messes provided themselves with provisions and stores from on shore. The ship's ration was of a very inferior quality, and well calculated to derange the functions of the digestive organs in any part of the world; to its agency I attribute mainly the general prevalence of dysentery in the squadron. It is unnecessary to enter into detail of the condition of the ship's provisions, further than to state that most of the articles had been sent from the United States, and were probably old before leaving, as many were really unfit for use before we received them. This especially applies to the bread, flour and beans. My opinion now is, that

ships in the East Indies should serve out fresh provisions every day in port. The practice of giving sailors salted meats three or four times a week, or even once a week, in any tropical climate when fresh can be procured, is of very doubtful propriety so far as health is concerned. That dysentery was so rife with us is not due to any neglect of prophylactic means to guard against it. Captain Wyman, the accomplished commander of the *John Adams*, was ever alert in consulting the health and comfort of his crew, and never delayed to adopt any suggestions coming from the medical officers, which tended to promote that object. The number of cases of dysentery which terminated fatally, was ten: the number under treatment from January to October, inclusive, which embraces all of those displaying the type of the disease as prevailing in the China Sea, was seventy-three.

February 5th. A boy, R. A. Hunter, died this day of psoas abscess, whose first complaint of it was dated the 4th of the preceding November. He then attributed the pain in the hip to a "wrench" received in ascending the rigging. Dissection showed the lumbar vertebræ in a state of extensive caries, with a large amount of pus in the pelvis, derived from an abscess which radiated in various directions, dissecting the muscles of the thigh.

In this passage, especially that part through the strait of Malacca, we found the weather extremely adverse to our sick, which had now become numerous, rains being frequent and the temperature high. On reaching Singapore, the number of our sick was about two dozen, and continued to range between twenty and forty through the succeeding nine months, dysentery being the most conspicuous complaint. At Singapore we buried three of the crew, two seamen who fell victims to dysentery, and Mr. Ball already alluded to.

The island of Singapore, one of an Archipelago in the strait which gives it a name, is in north latitude $1^{\circ} 22'$, and east longitude 104° . The monsoon blows freshly through the strait, and to this free circulation Singapore is supposed to be indebted for a comparatively salubrious climate. Meteorological tables kept here, show it to have an uncommonly humid atmosphere. Rain falls in about two hundred days in the year. Average range of thermometer, 80° F., and of barometer, 29.9. We found the temperature of the air cool and pleasant, except for an hour or two at mid-day, frequent showers and passing clouds moderating the heat. The island is fifty miles in circumference, being throughout a succession of hill and dale: the soil is fertile, and well covered with wood. It was originally settled by emigrants from Sumatra, but the Chinese at present outnumber them. The English population is less than two hundred.—Although the climate of Singapore may not be so noxious to Europeans as its rival Batavia, still strangers are far from being exempt from any of the maladies which are so often fatal in all parts of the China sea. Average number on sick report at Singapore, 21.

March 28th. Sailed from Singapore.

May 1st. Arrived in Manilla.

This long passage of thirty-four days between two ports scarcely one thousand miles apart, was characterized by oppressively hot weather, light airs, calms, and rain squalls. Two seamen died of dysentery on the passage.

Manilla, or Luconia, is the capital of the Philippine islands. It is situated on the river Passig, which discharges its waters into the eastern and remote end of a magnificent bay, ninety miles in circumference. The site on which the city is built, and the country in the neighbourhood of the city, is flat and but slightly elevated above the level of the ocean. It is in latitude $14^{\circ} 36'$ north, and longitude 121° east. Few parts of the world have been more obnoxious to fevers, dysentery, and cholera. During our visit the latter raged to a considerable extent among the lower classes, presumed to have been induced by the scarcity of food which a failure in the rice crop had occasioned. All vessels remaining for any time during the south-west monsoon are liable to suffer more or less from sickness. Our list doubled during a stay of ten days. Ships water in the Passig, but care should be taken to go far enough up the stream, as the water near its mouth will be found brackish, or otherwise unfit to be taken to sea.

The Tagalos (natives of the Philippine islands), are of a bright olive complexion, rounded symmetry of form, considerable *embonpoint*, and altogether possess greater personal attractions than I have seen among other Asiatics. The favourable influence of religion and government is illustrated in their present condition. In no partially civilized people have I seen so happy an aspect of health, comfort and contentment, as may be witnessed among the Tagalos. In embracing Christianity, they have done so through a form intelligible to their understandings, adapted to their usages, and agreeable to their sentiments of propriety. Its tenets are familiarly explained by the benevolent priesthood of the Roman Catholic Church, who have given to this disinterested service all their powers of mind and body. By means of these excellent men, the civil institutions are assimilated to the patriarchal character, affording a striking and favourable contrast to what may reasonably be supposed to have been their condition in former ages. Average number on the sick report at Manilla, 21.

May 10th. Sailed from Manilla.

May 20th. Arrived in Macao Roads.

We remained in Macao Roads about three weeks, and afterwards lay in the securer anchorage of Tong Koo, the greater part of the summer. It is between Canton and Macao, fifteen miles from the former. At these anchorages five of the crew died: two of dysentery, one of phthisis, one of epilepsy, and one of tetanus. The latter I will present in detail.

" Benjamin Parvin, apprentice, aged seventeen—whilst in Zanzibar the

preceding September, had been wounded in the elbow by the accidental discharge of a fowling piece. A load of small shot entered the forearm posteriorly about two inches below the elbow joint, and passing through the interosseous space over the ligaments of the joint, escaped (the greater part of the load) anteriorly above the elbow, taking with it a portion of integuments larger than the palm of a man's hand. As the space through which the nerves and vessels of the arm pass was included in this course, a large nerve (the median), was wounded and left exposed partially.— Little or no blood was lost; there was no pulse at the wrist for a day or two, and ever after the pulsation there was very feeble. The wound healed kindly, but both the flexion and extension of the joint were impaired. The arm and hand gradually diminished until his death, a sensation of numbness and pain being a concurrent symptom.

"On the 30th of June following this accident, Parvin received an incised wound on the front of the thigh, two or three inches above the patella.— The wound, perhaps two inches deep and one long, was inflicted by a small carving knife. It bled profusely at the time, but was soon arrested by pressure, dressed with a pledget of lint, and rest in the horizontal position enjoined. A week afterwards it bled afresh, but was again arrested without difficulty. This hemorrhage recurred on the eighth and tenth day from the injury. On the thirteenth day suppuration had commenced: poultices were applied, and everything seemed favourable until the sixteenth day, when the patient complained of severe pain across the lumbar region, a rigidity of the muscles of the face, without the ability to open the mouth. The weather at the time was oppressively hot, except at night, when a cool breeze circulated. He attributed the symptoms of the morning of the sixteenth to a cold caught from sleeping under the wind-sail. In the treatment, the main reliance was placed upon cups and counter-irritants to the spine, and morphia internally. In my absence from the ship, on consultation, he was bled the afternoon of the second day from the appearance of the rigidity of the muscles of the face, and expired in two hours afterwards in tetanic spasms. There was nothing remarkable in the appearance of the wound as seen after death. It contained a small quantity of clotted blood. A minute artery may have been cut, but it escaped notice. In the cicatrized wound near the elbow joint about two dozen small shot were found. It is difficult in this case to say whether the wound of the thigh was the sole cause of the tetanic symptoms, or whether it only determined the course of an ordinary catarrh. Again, how far the previous wound of the elbow and nerves of the arm predisposed the patient's system to nervous complaints."

The crews of ships trading to China do not suffer so severely from fevers and dysentery at Macao, or the securer anchorages in the vicinity, as the Typa, Lintin, Tong Koo, &c., as at Whampoa, the port of Canton, where they are surrounded by paddy fields. Pernicious consequences often fol-

low the smuggling on board a vile drink called "*samshu*," made of fermented rice-water, with certain hurtful ingredients. Average number on the sick list in China, 20.

August 6th. Sailed from Tong Koo.

October 10th. Arrived in Honolulu.

During this long passage the sick list was sometimes as high as forty.—Three deaths occurred of dysentery, and one of debility and old age. The weather was frequently tempestuous and rainy, conveying to our feelings a sensation of coldness, although the mercury but once fell below 50° F. The numerical force of the crew being diminished by the many sick and invalids, necessarily imposed on the remainder additional duties. To these circumstances, the appearance of the scorbutic affections on board both ships of the squadron is to be attributed, rather than the length of time at sea or the absence of vegetable diet.

John Hamilton, already referred to in speaking of old men, was the first subject of attack. He had had dysentery in Macao Roads, but recovered perfectly in a week. On the 3d of October, fifty-eight days at sea, he reported himself with œdematous legs, for which a purgative was prescribed. The day following there was less œdema, but a number of spots resembling erysipelas had appeared on each leg. Two days subsequently, the veins of the leg were in a varicose condition; the spots had increased in number and size, and the gums were spongy and bled freely. He was directed to use a vegetable diet as far as practicable. Extract of taraxacum was prescribed, and a mouth-wash of creosote-water.

October 7th. Mucous lining of mouth and fauces presents a number of mottled spots, with pain; bleeding from gums increased.

8th. Spots on the legs larger and more painful; mouth swollen, and saliva freely secreted. Lemonade for common drink. Continue other treatment.

9th. Worse. Offensive effluvia from the mouth; the whole mucous surface of which is affected.

10th. Arrived in Honolulu. Sent on shore and allowed a free diet.—On the 28th he returned to his duty entirely restored to health.

The symptoms in all the other cases bore a mitigated resemblance to the foregoing, excepting the existence in some of them of one symptom here not manifested: *nyctalopia*. On board the *Columbia*, where the disease prevailed to a far greater extent, this was of frequent occurrence. More than a dozen cases were under treatment with us for scurvy, but there were many, doubtless, which, being slight, the medical officers knew nothing of. The gums of all those who had taken much mercury became spongy and red.

A mode of treatment prevails among the whalemén resorting to this port, which they regard as an infallible cure. It consists in burying the

nether extremities, and frequently the whole body, in the earth, for which the taro beds offer admirable facilities.

The Sandwich Islands, or, agreeably to modern orthographers, the Hawaiian Islands, are a group embraced between the parallels of north latitude $18^{\circ} 50'$, and $22^{\circ} 20'$, and between $154^{\circ} 53'$, and $160^{\circ} 15'$, of west longitude. Of coralline and volcanic formation, their surfaces are interspersed with, or rather constituted of, mountains and valleys. The latter abound with the most luxuriant vegetation, furnishing everything required by the inhabitants, in the rude state they have hitherto lived. The principal article of native diet is derived from the taro plant, or *arum esculentum*, for which the soil and climate is peculiarly suited. It is said, and I believe admits of ready proof, that more individuals can be subsisted upon the same given quantity of land planted in this article than in any other vegetable product. To prepare this for eating, it is first boiled, then pounded, and set aside for a day or two to ferment, after which it is eaten in a state resembling paste in appearance, and sour starch in taste. The islands may be regarded as highly salubrious. Diseases are not of a severer grade than are met with in temperate climates. Small-pox has at times appeared as a fatal epidemic, but not to any extent of late years.—The visits of whalers have introduced venereal diseases, and many attribute to them the declining state of the population, but I feel assured without cause. The disease could not exist without visible manifestations somewhere, but on pretty extensive observation and inquiry, I could not satisfy myself that its effects upon the population of these islands had been more pernicious than among any civilized people.

At Honolulu we tarried long enough to recruit the health of our crew. Their convalescence was rapid, and from the period of our sailing from thence may be dated their recovery. The narrative of our homeward voyage may be properly omitted, not being characterized by any incident of professional interest.

U. S. NAVAL SCHOOL, ANNAPOLIS, MD.,

September, 1845.

ART. VIII.—*Excessive Mortality of Male Children, with the causes explained.* By GOUVERNEUR EMERSON, M. D.

EVER since correct registers of mortality have been kept, it has been observed that the proportion of males dying in the first years of life is much greater than that of females. It might be supposed that in the very early stages of infancy, whilst the external circumstances to which both sexes are subjected are so nearly the same, boys and girls would be placed upon